

# **Study on the potential ecological corridors between the local populations of the brown bear in Bulgaria**

Nikolai SPASSOV, Kiril GEORGIEV, Vasil IVANOV, Pavel STOEV

## **Introduction**

The intensification of the human pressure resulting in the apportionment and isolation of the bear habitats in the mountainous regions gives increases the importance of the study on the linkage areas, ensuring contacts of the bear sub-populations in Bulgaria and on the Balkans in general.

The present research on the bear (*Ursus arctos*) distribution (SPIRIDONOV & SPASSOV, 1990; SPASSOV & SPIRIDONOV, 1999; SPASSOV et al., 1995) has proven the occurrence of two main populations in the country: the Rila - Rhodopes population, that is also linked to the species population in the Greek parts of Rhodopes Mountains; and the Central Stara Planina population.

The range and the numbers of the second population is more limited, and it could therefore be regarded an isolated population. Although at present, there is no risk for genetic degeneration, or for drastic decrease of the population numbers, such trends are likely to occur in the future. This adds to the importance of the task to study the opportunities for possible contacts of the two main populations of the bear in Bulgaria. The issue of the exchange of specimens among populations of different mountains separated by transportation infrastructure, that is also very often rather intensively used, as well as the issue of the contacts with the populations in the neighbouring countries are especially important for the development of a wholesome concept for the preservation of the native Balkan population. The assumption for the existence of a „bear corridor“ connecting the two main populations was launched with the preparation of the Red Data Book of Bulgaria (SPIRIDONOV & SPASSOV, 1985).

The Action Plan for the protection of the bear in Bulgaria, elaborated in 1994 by a team of the Wilderness Fund defined the aim to study the ecological corridors between the Bulgarian bear local populations as one of the priority issues

concerning the preservation of the bear not only in Bulgaria but also on the Balkans. Following this plan for action, approved at a large national meeting of the bear specialists in the country in January 1995, in 1996 the Wilderness Fund initiated a study on the ecological corridors between Bulgaria and Greece by studying the possible contact areas for the bears in the Rhodopes Mountains. The study has been accomplished within the frames of the project of the NGO - Conservation of the Rhodopes Mountains - funded by the WWF - International. In the same time, the problem of the trans-boundary and the internal corridors of the local populations has been discussed several times by the teams of the Arcturos - Greece, the Wilderness Fund - Bulgaria, representatives of Albania and the FYR of Macedonia have also joined these discussions during the regular meetings of the Balkan Bear Conservation Network (BBCN). Resulting from this, a common strategy has been drafted to study the bear corridors in the four south Balkan countries - Albania, Bulgaria, Greece and FYR of Macedonia, through the elaboration and carrying out of an unified questionnaire study. The study was supported by the projects of the Wilderness Fund and the Arcturos. A substantial amount of information has been compiled on the species distribution, the damages on the agriculture, the human attitudes towards the bear in the border linkage areas between the four countries.

The present study on the corridors in Bulgaria is a part of an additional investigation on both the border and the inner bear corridors in the four countries and it has been funded within the frames of the Balkan Net Project of the Greek NGO - Arcturos.

## Methodology

The study has been accomplished by using a shortened version of the above mentioned questionnaire. Personal interviews have been carried out in the regions of the potential bear corridors (villages, state forestry stations, huts, train stations, as well as outside the settlements). The people interviewed have been preliminarily selected as to belong to groups whose occupation gives maximum guarantee for the reliability of the information they give on the specific issues - the hunting officers within the state forestry stations, foresters, hunters, shepherds, etc.

The study regions have been chosen after a preliminary analysis on the available data on the distribution, the numbers and the migrations of the bear both within its major habitats and in the country in general (see the above literature). This analysis has enabled the team to select the regions, that represent the most probable bear corridors, within the larger areas which are presumed to ensure opportunities for exchange of specimens between the different populations. In addition, the regions, that represent potential corridors in the areas that may

serve for further expansion of the bear range have been included in the study. The peculiarities of the relief, the vegetation cover, the existing infrastructure and the location of settlements has been taken into account.

The description of the vegetation is based on direct observations in the regions and the Vegetation Cover of Bulgaria (BONDEV, 1991) has also been referred to extract information for the larger areas of the bear ecological corridors. To certain extent the term „population“ has been used on provisional basis, to mark the presence of the species in a localised habitat and on the map the approximate boundaries of the bear ranges are marked by striped pattern.

The following potential/ possible corridors of the populations inhabiting the already known habitats have been identified:

1. The contact region for the isolated Stara Planina Population and the Rila - Rhodopes Massive Population. This includes the Sredna Gora Mountain and corridors between this Mountain and the Stara Planina, on one hand and on the other hand corridors to the Rila-Rhodopes Massif. The Sredna Gora Mountain should not be considered a corridor itself, but should rather be viewed as a transit zone offering favourable conditions for the long-term presence of single individuals, yet a stable, permanent population has not been identified there. The potential corridors connecting the Sredna Gora with the Stara Planina and Rila are respectively:

1.1. Corridor for extending the range from the Central Stara Planina to the Sredna Gora - it is likely to be the Koznitsa ridge.

1.2. Corridor for migration from the Ihtiman Sredna Gora to Rila Mountain - direct linkage (the eastern corridor) and/ or through the relatively smaller massifs of the Lozenska, the Plana and possibly the Vitosha Mountains (western corridor).

2. Corridor for specimens exchange between the populations of the Rila and the Pirin Mountains: the Predela site.

3. Corridor for specimens exchange between the populations of the Rila and the Western Rhodopes populations: the Mesta River valley (between the Rila and the Rhodopes) and the Yundola site.

4. Corridor for specimens exchange between the populations of the Rila and the smaller mountains to the South of Sofia: Plana and Verila Mountains and their linkage to the Rila and Vitosha Mountains

5. Attention has been paid to the specimens migrating to and along the mountains on the western Bulgarian border:

5.1. to FYR of Macedonia: the Maleshevska, Vlahina and Osogovo Mountains;  
5.2. to Yugoslavia: the Western Stara Planina Mountain.

This publication does not deal with the corridor between the Western Rhodopes and Prin Mountains (the Momina klisura site) for which there are data available already (SPIRIDONOV & SPASSOV, 1990; SPIRIDONOV, unpublished).

## **Results**

### **1. The contact region for the isolated Stara Planina Population and the Rila - Rhodopes Massive Population.**

#### **1.1. Corridor for extending the range from the Central Stara Planina to the Sredna Gora (see the map - Fig.1, N1.1)**

##### **Description of the region**

**Geographic location:** the Koznitsa ridge, situated in a North-South direction, connecting the Teteven section of the Central Stara Planina Mountain and the Main Sredna Gora Mountain.

**Vegetation:** the dominant forest vegetation is formed by *Fagus sylvatica*, while the *Quercus dalechampii* and the mixed *Carpinus betulus* - *Quercus dalechampii* have a lesser coverage; the native forest vegetation has been partially replaced by dense *Pinus silvestris* plantations or by grass formations.

**Description of the most favourable linkage region (ecological corridor):** the data on the occurrence of the bears along the southern slopes of the Stara Planina and the parallel information on bear presence in the Main Sredna Gora Mountain (see below), as well as the relief and the occurrence of mature forests in the region of the Koznitsa Ridge are indicative for the fact that it has been used as a linkage region (see the arrow on the map). The forest along the Koznitsa ridge reaches the motorway. Right below the ridge, above the Klisura town are located seven bridges (some 15 meters high) in close proximity to each other, placed over deep (10-15 m) rocky gorges, that are overgrown densely by forest and bushes. These are ideal natural corridors for crossing from one mountain to the other. The railway crosses the ridge in a tunnel, cutting into the ridge right after the Koprivstitsa town and getting out just a before the Klisura town.

**Interviews were carried out** in the Bunovo village, the Oboriste village, the Aramliets State Forestry Station, the Pirdop State Forestry Station, the Starosel State Forestry Station - the Barikadite hut, the Chekanchevo village (where the hunting unit has been interviewed) and the Klisura town.

##### **Questionnaire results and analysis**

The northern slopes of the Teteven section of the Stara Planina Mountain are one of the most favourable bear habitats in the country. The bears migrate to the southern slopes both to the East and to the West, e.g. evidence for this is the reported in 1997 occurrence of bear just above the Bunovo village (see the map - M1). During the last several years a permanent presence of bears (a bear with a cub and possibly one more animal) has been registered in the region of the Bogdan Peak (see the map - M2) and the Barikadite site (the Main Sredna Gora Mountain). A bear has been observed

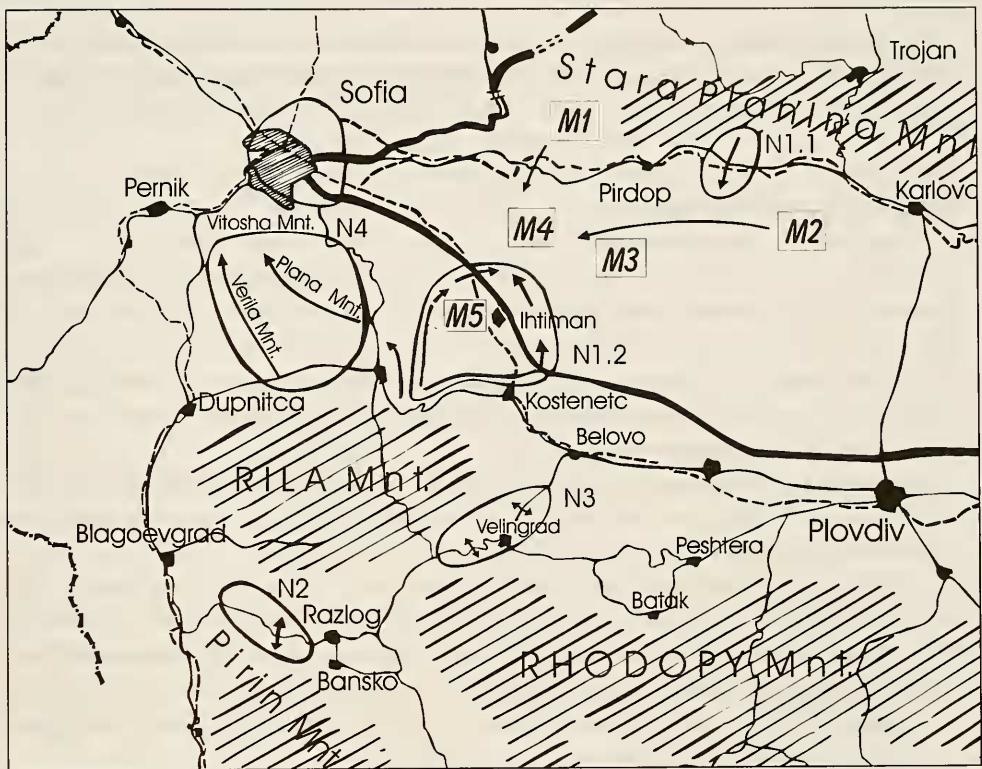


Fig.1. Bear corridors between Central Stara Planina, Rila, Pirin, Rhodopes and the small mountains around Sofia

in a more western direction - in the regions of the Oboriste and Kamenitsa sites, Ihtiman Sredna Gora Mountain (see the map - M3), both in 1998 and some seven-eight years ago. During the last two years there have been data for the westernmost distribution (see the map - M4) of the bear - the Aramliets State Forestry Station (Ihtiman Sredna Gora Mountain). The information is for a permanent presence of one or two bears. They might have reached the region migrating along the crest of the Sredna Gora Mountain from the Bogdan Peak region, although the migration from the Rila Mountain (the Samokov section) - through the Eledjik ridge - or from the Central Stara Planina - through the Gulabets Pass - cannot be excluded.

## **1.2. Corridor for migration from the Ihtiman Sredna Gora to Rila Mountain - direct linkage and/ or through the relatively smaller massifs of the Lozenska, the Plana and possibly the Vitosha Mountains (see the map - Fig.1, N1.2)**

### **Description of the region**

**Geographic location:** the region covers from the Northwest to the Southeast - the Lozenska Mountain, the westernmost sections of the Ihtiman Sredna Gora Mountain - reaching the Iskar dam to the West, the Septemvriiski Rid ridge (Karabair) and Eledjik ridge.

**Vegetation:** the dominant forest vegetation is formed by *Fagus sylvatica moesiaca*, *Quercus dalechampii*, and *Quercus frainetto*, sometimes they are being replaced by arable lands.

**Description of the most favourable linkage region (ecological corridor):** two particular sites favourable for crossing have been identified within the whole broader region:

the site to the east of the Verinsko village (see the arrow on the map). The southern highway, the old motorway and the Sofia - Plovdiv railway divide two ridges that are reaching this transportation infrastructure. The distance from the transportation facilities to the forest of oak and Scotch pine plantations being not more than 40 m. At the same place a highway bridge has been constructed over a gorge overgrown by forests and bushes.

the Septemvriiski Rid ridge (Karabair) - Eledjik (see the map) - the two ridges have a direct connection to the Southwest from the Mirovo village (at the km 92 along the highway) and are densely overgrown by forests; the old motorway and the railway also cross this region.

**Interviews were carried out** in the Lozen village, the Lozen monastery, the Verinsko village, the Polyantsi village and the Iskar State Forestry Station.

### **Questionnaire results and analysis**

In this region was established that only the southern slopes of the Lozen Mountain have been inhabited by bears. The contact between Ihtiman Sredna Gora and Rila Mountain through the Lozenska Mountain has not been proven. Sometimes bears are sporadically occurring along the slopes of the Ihtiman Sredna Gora Mountain, neighbouring the Iskar dam (the Iskar State Forestry Station). In the same time, almost all-year-round the bears migrating from the Rila Mountain have been permanently inhabiting the region of the Septemvriiski Rid ridge (Karabair). According to data of the hunters from the Verinsko village, in the end of the 'eighties bears have been migrating from the Karabair to the Eledjik ridge. In the beginning of the 'nineties a bears has been run over by a train close to a petrol store, located right North of the Ihtiman town (see the map - M5). The railway borders cornfields where the bear has been feeding. According to Eng. Velichkov (hunt-

ing officer in the Ihtiman State Forestry Station , living in the Polyantsi village) the Karabair ridge has been inhabited by two - three bears in the autumn of the 1997.

## **2. Corridor for specimens exchange between the populations of the Rila and the Pirin Mountains: the Predela site (see the map - Fig.1, N2)**

### **Description of the region**

**Geographic location:** the region covers the Predela Pass - the narrow zone connecting the Rila and the Pirin Mountains.

**Vegetation:** the main vegetation is formed by forests of *Picea abies*, *Pinus peuce*, *Pinus silvestris*, in some areas *Pinus nigra* has been replaced by arable lands; along the narrowest part of the pass with several kilometres length, the adjacent Mountain slopes are covered by natural oak forests mixed with Scotch pine plantations.

**Description of the most favourable linkage region (ecological corridor):** the forests in the above mentioned narrowest section reach the motor way connecting the towns of Simitli and Razlog.

**Interviews were carried out** in the Dolno Osenovo village, the hut of the Bulgarian Union of the Hunters and Fishermen (in the Predela site), the Razlog State Forestry Station (a forester has been interviewed in the Predela site).

### **Questionnaire results and analysis**

Bears inhabit the region permanently. There is reason to consider that the Rila and the Pirin populations are in a constant exchange, as according to all interviewed people the motorway in the Predela site does not form an obstacle. In 1995 and several years before bears have been observed by the Dolno Osenovo village (the slopes of the Rila Mountain) in the Kimidarkata site, attacks on horses have been registered in the Trionovoto site. In the last years bears have been observed in the sites of Sapatovo, Sokola, Raitchitsa, Lugovete (the slopes of the Pirin Mountain). In the beginning of the 'nineties a large bear has been observed in the Zhultite Skali site (the slopes of the Pirin Mountain).

## **3. Corridor for specimens exchange between the populations of the Rila and the Western Rhodopes populations: the Mesta River valley (between the Rila and the Rhodopes) and the Yundola site (see the map - Fig.1, N3)**

### **Description of the region**

**Geographic location:** the region of the Mesta River valley dividing the Rila from the Rhodopes Mountain; the Yundola Pass.

**Vegetation:** the main vegetation in the Belitsa - Yakoruda region is formed by forests of *Quercus frainetto*, *Quercus dalechampii*, *Pinus silvestris* plantations of mosaic distribution, bushes and arable lands; the vegetation in the Yakoruda - Yundola, Belovo section of the region is formed by natural forests of *Pinus silvestris*, *Picea abies* and mixed forests of *Fagus sylvatica* and *Quercus dalechampii* at the lower elevations to the Belovo town; substantial part of the vegetation cover is formed by mixed *Picea abies-Pinus silvestris*, *Picea abies* - *Abies alba* forests.

**Description of the most favourable linkage region (ecological corridor):** the region of the Mesta River Valley from the Belitsa village to the villages of Butarevo and Rohlevo, as well as the Yundola Pass. The motorway from Razlog town to Yundola and than to the towns Velingrad and Belovo cuts through the whole region. In addition, parallel to the road is located the railway connecting the Septemvri town to the Dobriniste town, and crossing the towns of Belitsa, Yakoruda and Yundola.

**Interviews were carried out** in the site between the Banya and the Kraiste villages, the General Kovatchev railway station, the Butarevo village, the Rohlevo village to the Yundola site.

### **Questionnaire results and analysis**

The region to the Northwest of the Razlog town - between the Banya village and the Kraiste village, where the relief is more plain and open bear presence has not been registered. Further North, where the region becomes more hilly, in the Trestenik site, close to the Belitsa village a bear has been noticed recently. Also recently a bear has been spotted close to the General Kovatchev railway station, where it has attacked bee-hives. In the region of the villages of Butarevo and Rohlevo a bear with a cub has been observed grazing with a herd of sheep.

### **4. Corridor for specimens exchange between the populations of the Rila and the smaller mountains to the South of Sofia: Plana and Verila Mountains and their linkage to the Rila and Vitosha Mountains (see the map - Fig.1, N4)**

#### **Description of the region**

**Geographic location:** the linkage areas between the mountains of Vitosha, Verila, and Lakatiska section of the Rila Mountain and the territory between the Rila Mountain, the Shipochan ridge and the Plana Mountain.

**Vegetation:** the dominant vegetation of the region between the mountains of Vitosha, Verila, and Lakatiska section of the Rila Mountain is formed by *Fagus sylvatica* forests, *Pinus silvestris* plantations and *Juniperus sibirica* bushes at the higher elevations, at certain spots the native vegetation is being

replaced by agricultural lands; while the vegetation of the other part of this region - the territory and between the Rila Mountain, the Shipochan ridge and the Plana Mountain is covered by forests of *Quercus dalechampii*, *Quercus cerris*, *Quercus frainetto* and *Fagus sylvatica*, some *Pinus silvestris* plantations and agricultural land also take part in the vegetation cover.

**Description of the most favourable linkage region (ecological corridor):** Vitosha Mountain, Verila Mountain, and Lakatishka section of the Rila Mountain; in general the corridor is rather deforested, however the linkage between the Lakatiska section of the Rila Mountain and the Verila Mountain, on both sides of the motorway, has been characterised by denser beech forests mixed with Scotch pine; a local motorway connects the towns of Dupnitsa and Samokov.

Interviews were carried out in the Govedartsi village and in the Klisura village.

### Questionnaire results and analysis

According to the data from the local people the bears in the Rila and Verila mountains are in contact. Bear crossings have been registered in the 1987-1993 period in the region of the villages of Govedartsi and Klisura. A bear has been regularly attacking the livestock grazed above the Redko Buche village (Verila Mountain). In 1998 a bear has been spotted along the slopes adjacent to the motorway from the Rila direction.

The available information for the contact region of the Verila and Vitosha mountains and the Shipochan and Plana mountains are insufficient. However, the occurrence of permanent micro-population, inhabiting the southern slopes of the Vitosha and Plana mountains and consisting of at least five - six animals, as well as the individual reports from the Lyulin Mountain and from the region further westwards - the Breznik and Trun municipalities, are indicative for the possible and probable contact with the main population of Rila Mountain. It is also rather likely that animals migrating from the Rila reach the region of Godech town and the Western Stara Planina Mountain (recently a bear has been killed in Yugoslavia close to the Kom Peak, Paunovic, Belgrade Natural History Museum - personal communication). It is obvious that the mountains along the western Bulgarian border are regularly visited by single specimens. They can also undertake long, occasional migrations, as no permanent population has been registered. Beside the above described migration road from the Rila Mountain, certain colonisation of the region from the Pirin Mountain through the Vlahina and Ososgovo (see below) is also possible. Other options are migrations from the Iron Gataes and the Zaichar Mountain and from the Central Stara Planina Population (see below).

## 5. Migrations to and along the mountains on the western Bulgarian border

### 5.1. The border to the FYR of Macedonia: the Maleshevska, Vlahina and Osogovo Mountains (see the map - Fig.2)

#### Description of the region

**Geographic Location:** the mountains, situated in the North - South direction along the border between Bulgaria and the FYR of Macedonia.

#### Vegetation:

Maleshevska Mountain - the dominant vegetation is represented by *Fagus sylvatica* forests and pure stands of *Quercus dalechampii* or mixed *Carpinus betulus* - *Quercus dalechampii* forests in the lower parts; in some areas the native vegetation has been replaced by arable lands.

Vlahina Mountain - the dominant forest vegetation consists of *Quercus dalechampii* or mixed *Carpinus betulus* - *Quercus dalechampii* forests, large parts have been covered by arable lands;



*dalechampii* or mixed *Carpinus betulus* - *Quercus dalechampii* forests, large parts have been covered by arable lands;

Osogovo Mountain - the vegetation is represented by forests of *Fagus sylvatica*, *Pinus silvestris*, dense *Juniperus sibirica* bushes and grass formations in the upper elevations, the lower parts being covered by *Quercus dalechampii* or mixed *Carpinus betulus* - *Quercus dalechampii* forests

#### Interviews were carried out in:

Maleshevska Mountain - Gorna Breznitsa village;  
Vlahina Mountain - Sushitsa village;

Osogovo Mountain - the villages of Novo Selo, Gorno Rakovo and the Rila Monastery State Forestry Station

Fig.2. Data for bears registered along the Bulgarian-Macedonian border

## Questionnaire results and analysis

Maleshevksa Mountain - bears, including females with cubs, have been permanently observed or killed in the 'fifties - 'eighties period; in 1997 a bear track has been registered (according to the local hunting association data) and the same animal has been several times spotted close to the village (see the map - M6).

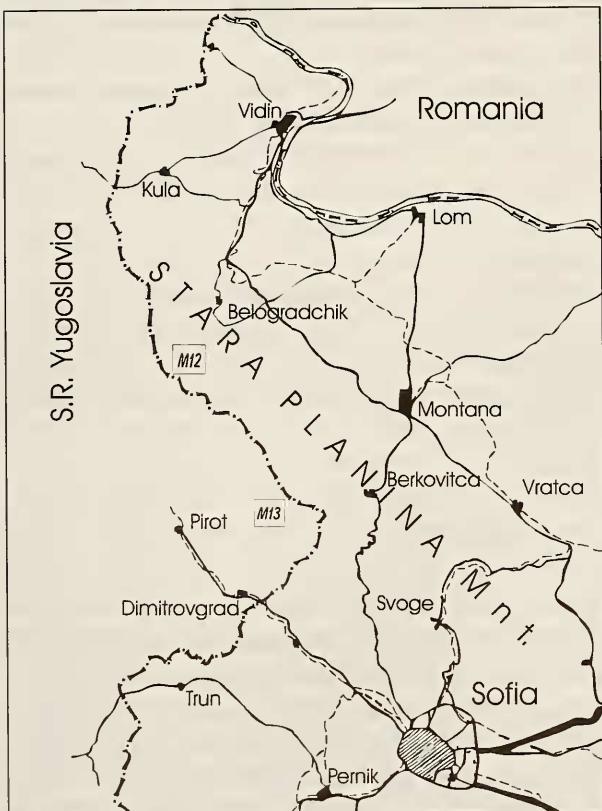


Fig.3. Data for bears registered along the Bulgarian-Serbian border

close to the Rakovo village (female with cubs?; see the map - M10) and in the Malak Predel site; a small bear has been observed close to the Novo Selo village (see the map - M11) and the track of a one-year-old cub was observed along the main crest of the mountain.

Given the fact, that in the 'eighties the information for bears along the western Bulgarian border were actually lacking, it could be supposed that these mountains have been re-colonised by migrants in the 'nineties, which undoubtedly is a positive trend.

Vlahina Mountain - in 1990 a large bear has been spotted three times in the Lovdjiiska Cheshma site; in July, 1998 a bear has killed a calf close to the military border station, the animal has covered the carcass with branches and soil (see the map - M7, M8).

Ososgovo Mountain - during the last tens of years there has not been data on the occurrence of bears in the region; this questionnaire gives the firsts information on the colonisation of the region; a female with a cub has been registered for the firsts time by foresters in 1997, several indirect information on bear observations have also been registered - in May, 1998 in the region of Gueshevo (female with a cub; see the map - M9), as well as

## **5.2. The border to Yugoslavia: Western Stara Planina Mountain (see the map - Fig.3)**

### **Description of the region**

**Geographic location:** the region covers the western section of the Stara Planina Mountain, spreading in East - West direction from the Petrohan Pass, through the Kom Peak and the Belogradchik Pass.

**Vegetation:** the dominant vegetation is formed by *Fagus sylvatica*, dense *Juniperus sibirica* bushes and grass formations in the upper parts.

**Interviews were carried out** in the villages of Stakevtsi, Vurbovo, Chuprene and Gorni Lom.

### **Questionnaire results and analysis**

The last bear in the region was killed in 1929. According to the former hunting officer of the Chuprene State Forestry Station - Eng. Djuninski, who had carried out systematic research, a bear was observed in 1988, 1989 in the Chuprene Nature Reserve (see the map - M12). This information has been confirmed by the foresters from the neighbouring villages.

### **Conclusions**

The data from the questionnaire proved that in all regions, which were preliminarily selected as possible sites for contacts of the populations, in the last ten years the conditions have been favourable and there is information on their potential functioning as corridors for migrations and exchange of genetic information.

The exchange of specimens from the habitats in Rila, Pirin and the Rhodopes Mountains is actual. The connection between the Rila and the Rhodopes in the region of the villages of Mesta, Filipovtsi and Bukovo has not been investigated. However it is considered that the corridor is actually used (see SPIRIDONOV, SPASSOV, 1990; SPASSOV et al., 1995). In the same time, it is considered that the corridor No 3 - covering the upper stream of the Mesta River valley to the Yundola Pass, which was not marked on the map in the above publications is valid.

There is certain migration from the Rila-Rhodopes Massif (most probably from the Pirin Mountain) to the mountains along the border of Bulgaria and the FYR of Macedonia. The main habitats along this border are located in the Maleshevska and Ososgovo Mountains. There were data on the occurrence of bears in the Vlahina and Maleshevska Mountains in the 'seventies (SPIRIDONOV & SPASSOV, 1990), which was not proven by the next questionnaire survey carried out (SPIRIDONOV, 1989; unpubl.). The present data are indicative for a limited process of re-colonisation of that territory, although most of the records are on single specimens, that cannot ensure the permanent presence of the species, the

process itself is indicative. It can explain the occurrence of bears, registered on the other side of the border in the last years (Arsovska, Society of the Ecologists of Macedonia - personal communication).

In theory the existence of a contact between the Carpathian and the Central Stara Planina populations is possible through the Danube in the region of the Iron Gates, as some of the migrants could have temporarily settled in the Western Stara Planina border region. Beside the data on the presence of bear in the Bulgarian part of the region (reported nine years ago), that was information for occurrence of bear last year in the Serbian part of the same region (see the map - M13, Paunovic, personal communication). According to the information compiled in Bulgaria and Serbia, the specimens there could be migrants from Rila Mountain, passing through Vitosha and the western border mountains. However, some indirect arguments exists on the opportunity that the bears are passing the Danube and migrate from the Carpathians or come from the Central Stara Planina population, and this possibility should not be excluded. The issue deserves a special attention. The possibility for migration of large carnivores through the Iron Gates, is indirectly proven by the find of a lynx, that drowned in the fish nets in Danube (Paunovic, personal communication), as well as by the other information on a lynx run over by a car by the Yugoslavian Blizina village (Miric, Paunovic, 1992).

An important result is the established possibility and the discovered indications for the occurrence of a natural linkage between the isolated Central Stara Planina population and the population of the Rila - Rhodopes Massif. Although such an exchange is rather rare, it may prove to be rather sufficient to maintain the genetic stability of the Stara Planina population in the present conditions. Some new Spanish investigations lead to the conclusions, that the migration of one specimen in 10 years is sufficient to provide the genetic information exchange (Mertzanis, Arcturos - personal communication). The migrations in the above region are exactly of this kind.

The more detailed description and study of the established corridors between the sub-populations will be of a specific importance for resolving the issues connected with the management of the native population, as well as for the preservation of the sites of primary significance for the contact of the population within Bulgaria and on the Balkans. This is especially importation for future plans for the development of the East-West and North-South transportation corridors that will be cutting the Balkan Peninsula and may turn to be a crucial factor for the fatal isolation of some of the localised populations.

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## **Проучване на потенциалните екологични коридори между локалните популации на мечката в България**

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( Р е з ю м е )

Направен е опит да се проучат и да се определят потенциалните райони на контакт („коридори“), свързващи съществуващите в страната локални мечки популации, както и коридорите, които биха могли да служат за бъдещи връзки с мечките популации на Македония и Югославия.

Установени са следните функциониращи/възможни коридори между популациите от известните местообитания:

1. Между Средна Стара планина и Рила
2. Между Рила и Пирин
3. Между Рила и Западни Родопи
4. Между Рила и планините южно от София

Събрана е информация за мигриращи индивиди към и по продължение на планините по западната граница на България.

Установено е, че условията през последните десет години в посочените райони са били подходящи и те са служили като коридори.

Бъдещи проучвания на коридорите биха били от особена важност за поддържане целостта на естествената балканска популация, особено като се имат предвид плановете за развитие на транспортната инфраструктура на Балканите.